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SADDLE FOR HORSEBACK RIDING

The present invention relates to a saddle for horseback riding, and in particular to a saddle with increased comfort for both rider and horse.

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Background of the Invention

During the last century only minor changes/improvements have been done on horseback saddles. The saddles of today all have their roots in the western- or the British type saddles that were developed before the 20th century. Both these concepts are mainly focused on the comfort for the rider and only to a minor extent on the carrying comfort for the horse. With respect to the load on the horseback they both represent high loads over a relatively small surface of the horseback. More specifically the load is concentrated on the narrow muscle section that run along the spinal and in the case of British saddles also on the muscular region just rear to the scapular, as they are provided with stabilizing protrusions that put a large pressure there. Such concentrated pressures may actually cause injury to the horse, whereby some of the pressurized muscles can get underdeveloped. Such saddles actually require that the horseback is adapted to the saddle in stead of the opposite. One attempt to spread the pressure over a larger area is presented in US 6,474,052 B2, which discloses a western style saddle provided with extra panels comprising a sheet of padded material (sheepskin) and a sheet of flexationally resistive material (leather). However, as these panels are resilient and do not comprise any elements rigid enough to spread the pressure over a large area, the load on the horseback is still relatively concentrated.

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On the other hand another drawback relates to rider comfort, in fact all saddles sold at present has to be "broken in" by the rider, i.e. the rider has to ride for many hours to form the seat of the saddle for best individual comfort. Moreover, if another rider borrows the saddle for a while, the saddle becomes reshaped. There have been attempts to create more versatile saddles that can be adapted to certain riders, or saddles that reshape in a relatively quick manner. EP 1 197 469 A1 disclose a modular saddle concept wherein the seating characteristics can be altered by detachable seat pads.

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Huvudföreläsaren Kusan

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Summary of the Invention

The object of the invention is to provide a new saddle for horseback riding, which saddle overcomes one or more drawbacks of the prior art. This is achieved by the saddle as defined in claim 1, the saddle base of claim 6, the saddle seat of claim 18, the saddle pad of claim 20 and by the method of claim 21.

One advantage with such saddle is that the comfort is increased for both horse and rider, as the saddle base and the saddle seat can be adapted to the horse and the rider, respectively, before they are assembled.

Another advantage is that the saddle spreads out the pressure from the rider over a larger area on the horseback thereby vastly increasing the comfort for the horse.

Still another advantage is that the saddle may be adapted to different riders and/or riding disciplines by attaching different saddle seats on the saddle base, on the same time as the same saddle seat may be used on several horses each with an individually adapted saddle base.

Furthermore, compared with traditionally hand made leather saddles the saddle according to the invention can be produced with efficient methods in relative inexpensive materials, whereby the saddle as a whole will be less expensive to produce, even though the comfort is increased.

Embodiments of the invention are defined in the dependent claims.

Brief Description of the Drawings

The invention will be described in detail below with reference to the drawings, in which:

Fig. 1 shows an exploded view of a saddle according to the present invention.

Fig 2 shows the saddle of fig. 1 in an assembled state.

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Huvudfaxen Kassen

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Fig 3 shows the saddle of figs. 1 and 2 mounted on a horse.

Fig. 4a shows an example of the saddle of fig 1 with a quick fastening system
5 for retaining the saddle seat on the saddle base.

Fig 4b display the function of the quick fastening structure wherein the saddle
seat of the saddle is partly released from the saddle base.

Fig. 5 shows a perspective view of a saddle base according to one embodiment
10 of the present invention.

Figs. 6a to 6c show the pressure distribution areas for a conventional British
type saddle, western type saddle and a saddle according to the present invention, respectively.
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Fig. 7 shows the shape of the peripheral edge of a saddle base and saddle pad
according to one embodiment of the present invention in cross section.

Detailed Description of Preferred Embodiments

20 Throughout this description the terms anatomically correct and anatomically adapted refers to the features that pressure from the saddle is spread evenly over a large area of the horseback, and that the saddle in no way or only to a limited extent interfere with the natural movement of the horse. Furthermore the terms indicate that pressure may be decreased over certain
25 sensible regions if so is needed. Moreover, the term rigid material is used to describe a material that is essentially non flexible as bulk material, but flexible when provided as a thin sheet or the like, i.e. the flexibility of a device made of said material can be controlled by varying the material thickness and the shape of the device.

30 Fig. 1 shows one embodiment of a saddle 10 for horseback riding according to the present invention. The saddle 10 comprises three separate parts and can be seen upon as a modular saddle system. In order from the horseback, the saddle comprises a saddle pad 20, a saddle base 30, and a saddle seat 40. The saddle pad 20 is preferably comprised of a resilient

material and is arranged closest to the horse and transfers the pressure from the other parts of the saddle to the horseback. The saddle base 30 is comprised of a rigid material and serves to spread the load from the rider over a large area of the horseback. The saddle pad 20 and the saddle base 30 are preferably adapted to each other such that an anatomically perfect fit on the horseback is achieved. The saddle seat 40 is in turn adapted for optimum riding comfort for the rider and it is detachably attached to the base 30. In the embodiment shown in fig. 1 the saddle seat 40 comprises a rigid seat base 50 and a seat cover 60 forming the seat surface.

Fig 2. shows the saddle 10 of fig. 1 in an assembled state and fig. 3 shows the assembled saddle 10 arranged on a horseback. The saddle 10 is retained on the horseback by use of conventional girth straps (not shown) that are attached to the saddle base 30. Stirrups (not shown) can also be attached to the saddle base 30 in a conventional manner, but they can also be attached to the saddle seat 40.

One key feature of the saddle 10 of the present invention is that the saddle seat 40 is detachably arranged on the saddle base 30. In this way the saddle base 30 and the padding 20 can be anatomically adapted to a specific horse, while the saddle seat 40 may be substituted to fit different riders, and/or riding disciplines. This concept is especially advantageous in situations where more than two riders frequently ride the same horse, e.g. riding academies and the like, and when the same horse is used for riding different disciplines, e.g. three day event riding. Furthermore it is advantageous for riders who often ride different horses, whereby they will be able to use the same saddle seat 40 on all horses. To achieve this versatility, saddle seats 40 with different seating characteristics can be arranged on the base 30, such that the saddle 10 can be adapted to different riders and/or riding disciplines, and consequently the saddle 10 can be anatomically adapted to more than one horse or type of horse by providing a number of different saddle bases 30 and saddle pads 20 with different characteristics.

To facilitate the attachment of the saddle seat 40 to the saddle base 30, the seat 40 is retained on the saddle base 30 by a quick fastening system 70, such that the saddle seat 40 easily can be detached/attached from/to the saddle base 30. In fig. 4a and 4b a schematic example of such a quick fastening system 70 is shown. Preferably, the quick fastening system 70 is comprised of a base structure 80 on the saddle base 30 and a mating structure 90 with a

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locking mechanism 110 on the saddle seat 40. According to the embodiment of fig. 4a and 4b the front end of the seat 40 is attached to the base by a hinged coupling 100 and the back end of the seat 40 is attached by a releasable clamp 110. Preferably, the seat 40 is biased with respect to the base by the clamp 110, such that a tight connection is achieved.

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By forming the quick fastening system 70 in one standardized size, all available saddle seats 40 can be arranged on all available saddle bases 30, whereby the system becomes extremely easy to adapt to specific situations and easy to upgrade. However, in some cases it is preferred to form the quick fastening system 70 to be limiting, so that only saddle seats 40 that are approved for that specific base 30 can be attached to it, e.g. a saddle base 30 adapted for a small horse such as a Shetland pony may be limited to only accept saddle seats 40 of children size.

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In order for the horseback saddle 10 to be anatomically adapted to the horseback, a new saddle base 30 has been developed, which spreads the pressure from the saddle 10 over a large surface area of the horseback. The saddle base 30 (fig. 5) is comprised of two pressure distributors 120 that are interconnected by a bridging arrangement 130 that provides clearance over the spinal region.

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Figs. 6a to 6c show the pressure distribution areas for a conventional british type saddle (140), western type saddle (150) and the saddle according to the present invention (160), respectively. As can be seen in figs. 6a and 6b, conventional saddles mainly rest on the narrow muscle sections on each side of the spinal, and in the case of British saddles also on the region just rear to the scapular 141, as they are provided with stabilizing protrusions that put a large pressure there. However, as is clear from fig. 6c, the pressure distributors 120 of the saddle base 30 according to the present invention spread the pressure from the saddle 10 over a considerably larger area. In order to achieve a larger pressure distributing area, the pressure distributors 120 each comprises a non flexing portion 170 and peripheral flexing portion 180 that extend over parts of the horseback that move during riding, so that pressure may be applied on a larger area without hindering the natural movements of the horse. In fig 6c, the border between the non flexing portion 170 and the flexing portion 180 is illustrated by the dotted line. The central non flexing portion 170 of the pressure distributor 120 can be

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made essentially rigid or non flexing as that section of the horseback does not move to a large extent during riding.

In one embodiment of the saddle base 30 (fig 5) the flexing portion 180 is divided in three
5 independent flexing portions 180 a-c, whereby better flexing characteristics are achieved.

In this way the pressure distributors 120 may be formed to achieve a width to length ratio that is greater than 1/5, preferably greater than 1/4, and most preferably greater than 1/3. The desired flexing characteristics of the flexing portion(s) 180 may be achieved in different ways
10 depending on what material the saddle base is formed in. Preferably the saddle base 120 is formed in a thin rigid material such as, a rigid polymer, steel, aluminum or other construction metals, and fiber reinforced composite materials, i.e. carbon, glass, kevlar fiber reinforced polymers. According to one embodiment of the present invention, the base 30 comprising the pressure distributors 120 and the bridging arrangement 130 is integrally formed as one piece.
15 By forming the base as one piece the resulting base 30 will be lightweight and strong at the same time.

Preferably the flexing characteristics for the flexing portion(s) 180 is/are individually controlled by selecting the shape and material characteristics. The flexing action of the flexing
20 portions 180 can be achieved in a number of ways. According to one embodiment the pressure distributors 120 are each provided with at least one flexing notch 190 that separates different flexing portions 180 and controls the flexing of adjacent portions. In the embodiment shown in fig 5 each pressure distributor 120 is provided with two flexing notches 190. The position and shape of the flexing notches 190 decide the characteristics of the saddle base
25 pressure distributors 120. The notches 190 are arranged such that the flexible portions 180 of the pressure distributors 120 allow the horse to move in a natural and do not hinder the movement of the horse. The flexing portions 180 may further comprise different material thickness or different material composition for different sections thereof. In one embodiment one or more bending indicators in the form of grooves are formed in the pressure distributor
30 120 to provide and control the flexing characteristics. In one embodiment, a more flexible material or material composition is comprised in the pressure distributors 120 to create flexing portions 180.

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Optionally, the flexing characteristics within each flexing portion 180, 180a, 180b, 180c are controlled so that it follows the movements of the horseback in a natural way. In one embodiment the material thickness of the flexing portions is gradually decreased towards the edge, so that the flexibility is increased towards the edge. The pressure distributors 120 are shaped such that they are anatomically adapted to the horseback, and they may even be formed to match the back of a specific horse to achieve maximum comfort for that horse.

The saddle base 30 according to the invention can also be adapted for production by techniques associated with mass production such as injection molding of polymers and sheet metal pressing, whereby the price of the saddle 10 can be lowered.

The bridging arrangement 130 of the base 30 provides a stiff saddle-section along the spinal of the horse and a relatively wide spinal tunnel that ensures that no pressure is applied on the sensible spinal region. To achieve a stiff bridging arrangement 130, it is preferably essentially continuous along the length of the saddle base 30, but there may be open sections to achieve additional ventilation, lower the weight etc. To avoid an increased pressure load on the horseback close to the spinal, the bridging arrangement preferably has at least one stiffener 200 that extends over a section of the pressure distributor 120 on each side of the spinal. In one embodiment the bridging arrangement 130 is provided with two stiffeners 200 on each side, the first in the front region of the saddle base 30 and the other in the rear region of the saddle base 30. However, the stiffening action may also be achieved e.g. by increasing the material thickness in the bridging arrangement 130 and the sections of the pressure distributors 120 that are close to the spinal, etc.

The saddle base 30 is further provided with coupling means 80 for the detachable saddle seat 40. As is described above, these coupling means 80 preferably are in the form of one side of a mating quick fastening system 70. The coupling means 80 may either be integrated in the design of the saddle base 30 or attached to it by any suitable means for fastening.

According to one embodiment of the present invention, the saddle seat 40 comprises a rigid seat base 50 that is provided with complementary coupling means 100, 110 for detachable fastening of the same to the saddle base 30. The complementary coupling means 100, 110 may be formed integrally in the seat base 50 or they may be attached to it by any suitable

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Huvudstaden Köpen

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means for fastening. The seat base 50 can be made of a molded polymer material, a fiber reinforced material, a pressed or molded metal, e.g. In one embodiment the seat base 50 has the form of a frame that is integrated in a molded flexible material forming the seat cover 60.

- 5 The seat cover 60 forms the surface on which the rider sits during riding. The seat cover 60 may e.g. be a thin cover of leather, synthetic leather or the like. But it may also be of resilient nature, such as a padded leather cover, or a molded polymer cover with a smooth surface, etc. Preferably the area of the cover 60 that is used as seating area during riding is provided as one piece, without seams or the like. Like conventional saddles the saddle cover 60 comprises
- 10 flaps that extend along the sides of the horse.

- The saddle pad 20 is formed to fill the space between the saddle base 30 and the horseback so that an anatomically correct load is applied on the horseback. In one embodiment of the invention wherein the saddle base 30 is provided in a limited number of sizes, a number of
- 15 saddle pads 20 with different thickness profiles may be provided to allow fine adjustment of the saddle size to fit a specific horse. The padding 20 is formed in a resilient material, such as a foamed polymer, sheep wool, flax and the like. Furthermore the saddle pad 20 may be formed so that reduced or no pressure is applied on certain regions of the horseback, e.g. such that less pressure is applied on an injured muscle. Preferably the saddle pad 20 also comprises
- 20 air and/or sweat channels.

- The saddle pad 20 can be provided with fastening means to secure it relative to the saddle base 30, so that their relative position do not change during riding, and so that they become easier to handle. In one embodiment, shown in fig. 7, at least a section of the peripheral edge
- 25 of the saddle pad 20 is formed as a clasping edge 210 that clasps the peripheral edge of the saddle base 30. The clasping section 210 further assures that the relative thin and sharp edges of the saddle base 30 never comes in contact with the horseback.

- In order to achieve full potential of the saddle 10 according to the present invention there has been developed a method of providing a saddle that is anatomically correct for a specific
- 30 horse and rider combination. In a general form the method comprises the steps of: providing a saddle base 30 that is anatomically correct for the horse; providing an, for the rider, anatomically correct saddle seat 40; and detachably arranging the saddle seat 40 onto the

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saddle base 30. The method may also comprise the step of providing an, for the horse, anatomically correct saddle pad 20.

Preferably, each component of the saddle according to the present invention is provided in a number of sizes and/or types, thereby defining e.g. a set of saddle bases 30 of different sizes, a set of saddle seats 40 of different sizes and/or adapted for different riding disciplines. Therefore the step of providing a saddle base involves selecting from a set of saddle bases 30 an, for the horse, anatomically correct saddle base 30; the step of providing a saddle seat 40 involves selecting from a set of saddle seats 40 an, for the horse, anatomically correct saddle seat 40; and, the step of providing a saddle pad 20 involves selecting from a set of saddle pads 20 an, for the horse, anatomically correct saddle pad 20.

In another embodiment of the present invention, the saddle base 30 and/or the pad 20 are formed to fit the back of the specific horse. In this case the step of providing a saddle base 30 involves forming the saddle base 30 to fit the back of the specific horse; and the step of providing a saddle pad 20 involves forming the saddle pad 20 to fit the back of the specific horse.

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CLAIMS:

- 5 1. Saddle (10) for horseback riding, comprising a saddle base (30) that is anatomically adapted to the horseback, and a saddle seat (40), characterized in that the saddle seat (40) is detachably arranged on the saddle base (30).
- 10 2. Saddle (10) according to claim 1 characterized in that the saddle seat (40) is retained on the saddle base (30) by a quick fastening system (70), such that the saddle seat (40) easily can be detached/attached from/to the saddle base (30).
- 15 3. Saddle (10) according to claim 2 characterized in that the quick fastening system (70) is comprised of a base structure (80) on the saddle base (30), and a mating structure (90) with a locking mechanism (110) on the saddle seat (40).
- 20 4. Saddle (10) according to any of the claims 1 to 3 characterized in that saddle seats (40) with different seating characteristics can be arranged on the base (30), such that the saddle (10) can be adapted to different riders and/or riding disciplines.
- 25 5. Saddle (10) according to any of the claims 1 to 4 characterized in that the saddle (10) can be anatomically adapted to more than one horse or type of horse by providing a number of different saddle bases (30) with different characteristics.
- 30 6. Saddle base (30) for a horseback saddle (10), comprising two pressure distributors (120) that are interconnected by a bridging arrangement (130) that provides clearance over the spinal region, characterized in that each pressure distributor (120) comprises a non flexible section (170) and a peripheral flexing portion (180, 180a, 180b, 180c).
7. Saddle base (30) according to claim 6 characterized in that each flexing portion (180) is divided into two or more individual flexing portions (180a, 180b, 180c) by at least one flexing notch (190).

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Huvudsaken: Krossen

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8. Saddle base (30) according to claim 6 or 7 characterized in that the bridging arrangement (130) on each side is provided with at least one stiffener (200) that extends over a section the pressure distributor (120).
- 5 9. Saddle base (30) according to any of the claims 6 to 8 characterized in that the bridging arrangement (130) on each side is provided with two stiffeners (200), the first in the front region of the base and the other in the rear region.
- 10 10. Saddle base according to any of the claims 6 to 9 characterized in that the bridging arrangement is essentially continuous along the length of the base.
- 15 11. Saddle base (30) according to any of the claims 6 to 10 characterized in that each pressure distributor (120) has a width to length ratio that is greater than 1/5, preferably greater than 1/4, and most preferably greater than 1/3.
- 20 12. Saddle base (30) according to any of the claims 6 to 11 characterized in that the pressure distributors (120) and the bridging arrangement (130) are integrally formed as one piece.
- 25 13. Saddle base (30) according to any of the claims 6 to 12 characterized in that it is formed in a fiber reinforced composite material.
- 30 14. Saddle base (30) according to claim 13 characterized in that the fibers are chosen from the group of carbon, glass, and kevlar fibers.
15. Saddle base (30) according to claim any of the claims 6 to 12 characterized in that that it is formed by injection molding a polymeric material.
16. Saddle base (30) according to claim any of the claims 6 to 12 characterized in that it is comprised of a pressed sheet metal.

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17. Saddle base (30) according to any of the claims 6 to 16 characterized in that it is provided with fastening structures (80) for a detachable saddle seat (40).

5 18. Saddle seat (40) for a horseback saddle (10) characterized in that it is provided with fastening structures (90, 100, 110) for detachable fastening of the same to a saddle base (30).

10 19. Saddle seat (40) according to claim 18 characterized in that the saddle seat comprises a rigid seat base (50).

15 20. Saddle pad (40) for a horseback saddle (10) characterized in that at least a section of the peripheral edge of the saddle pad (20) is formed as a clasping edge (210) that is arranged to clasp the peripheral edge of a saddle base (30) according to any of the claims 6 to 17.

20 21. Method of providing a saddle (10) for a specific horse and rider combination, characterized by the steps:

providing a saddle base (30) that is of suitable size for the horse,

25 providing an, for the rider, suitable saddle seat (40), and

detachably arranging the saddle seat (40) onto the saddle base (30).

30 22. Method of providing a saddle (10) according to claim 21 characterized in that it comprises the additional step of:

providing an, for the horse, saddle pad (20) that fit in between the saddle base and the horseback.

23. Method of providing a saddle (10) according to claim 21 or 22 characterized in that the step of providing a saddle base (30) comprises:

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selecting from a set of saddle bases (30) a saddle base (30) of suitable size for the horse.

5 24. Method of providing a saddle (10) according to claim 21 or 22 characterized in that the step of providing a saddle base (30) comprises:

forming the saddle base (30) to fit the back of the specific horse.

10 25. Method of providing a saddle (10) according to any of the claims 21 to 24, characterized in that the step of providing a saddle seat (40) comprises:

selecting from a set of saddle seats (40) a saddle seat (40) that fits the rider.

15 26. Method of providing a saddle (10) according to any of the claims 21 to 25, characterized in that the step of providing a saddle pad (20) comprises:

selecting from a set of saddle pads (20) a saddle pad (20) that fit in between the saddle base and the horseback.

20 27. Method of providing a saddle (10) according to any of the claims 21 to 25, characterized in that the step of providing a saddle pad (20) comprises:

forming the saddle pad (20) to fit the back of the specific horse.

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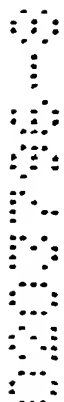
Horseback Riding

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ABSTRACT

Saddle (10) for horseback riding, comprising a saddle base (30) that is anatomically adapted to the horseback, and a saddle seat (40), wherein that the saddle seat (40) is detachably
5 arranged on the saddle base (30). The invention further relates to a saddle base (30) for a horseback saddle (10), comprising two pressure distributors (120) that are interconnected by a bridging arrangement (130) that provides clearance over the spinal region, wherein each pressure distributor (120) comprises a rigid section (170) and a peripheral flexing portion (180, 180a, 180b, 180c). Still further the invention relates to a saddle seat (40), a saddle pad
10 (20) and a method of providing a saddle (10).

Fig. 1



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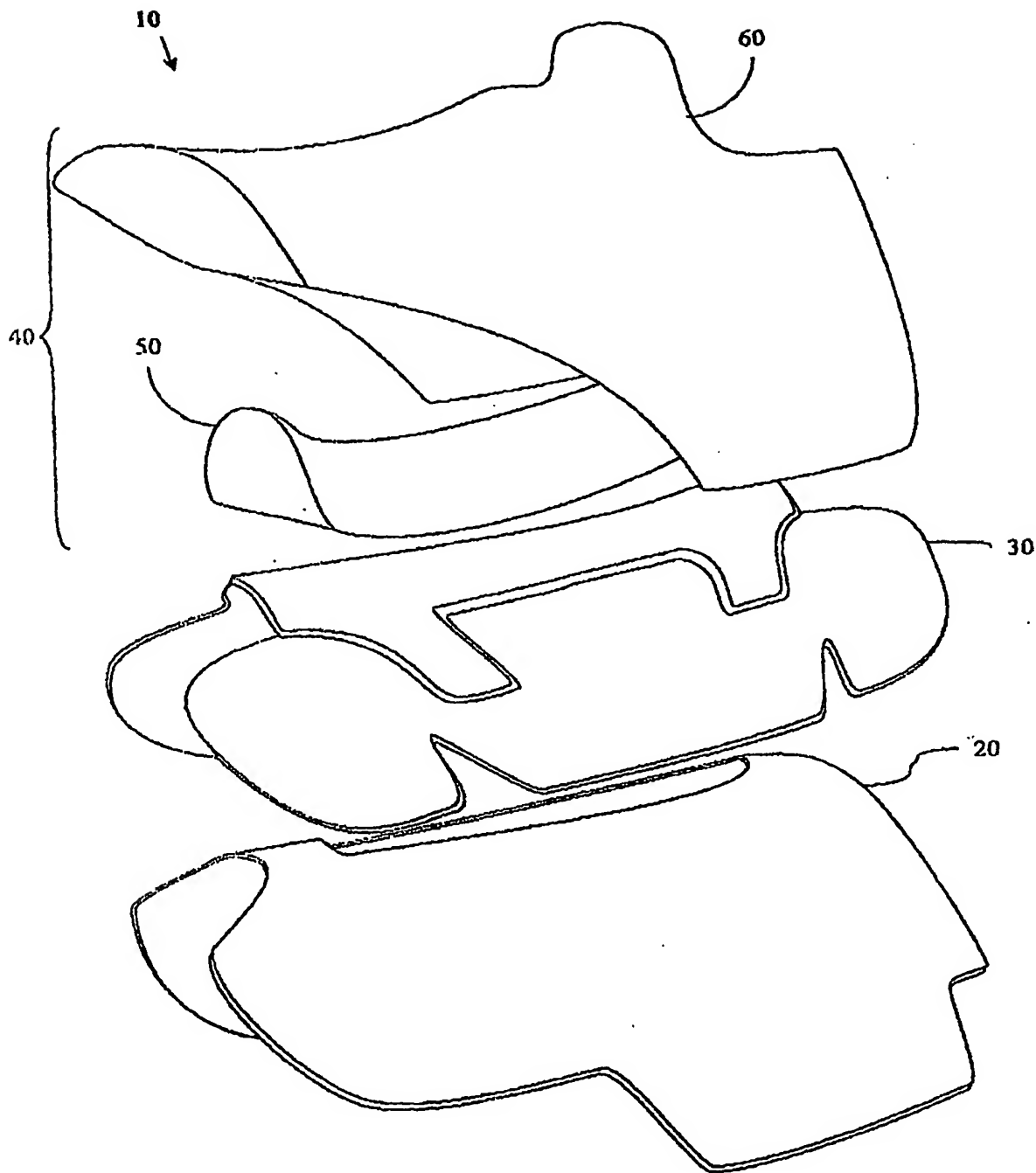


Fig 1

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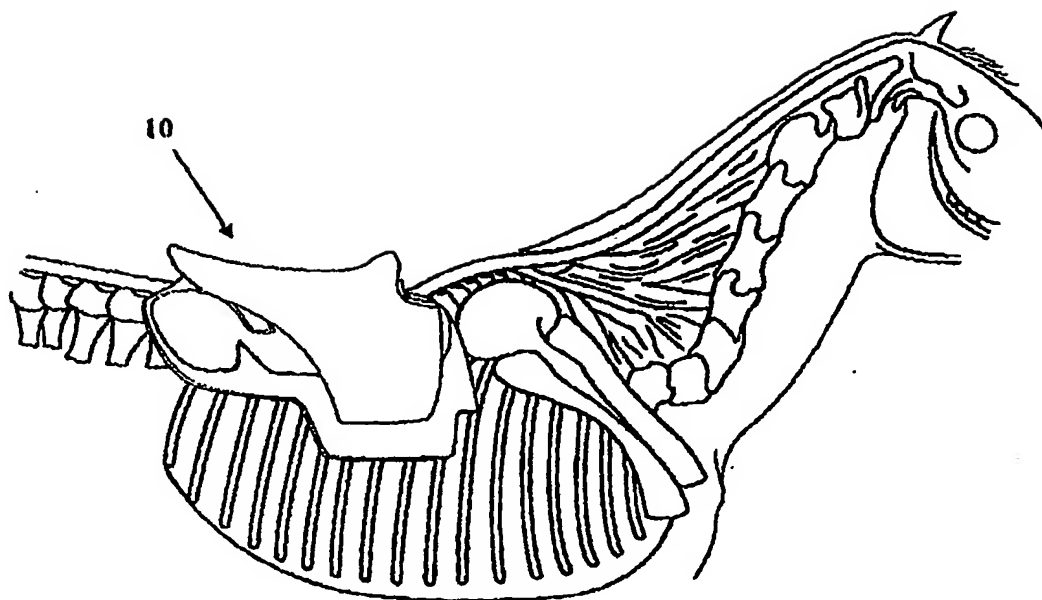


Fig 3

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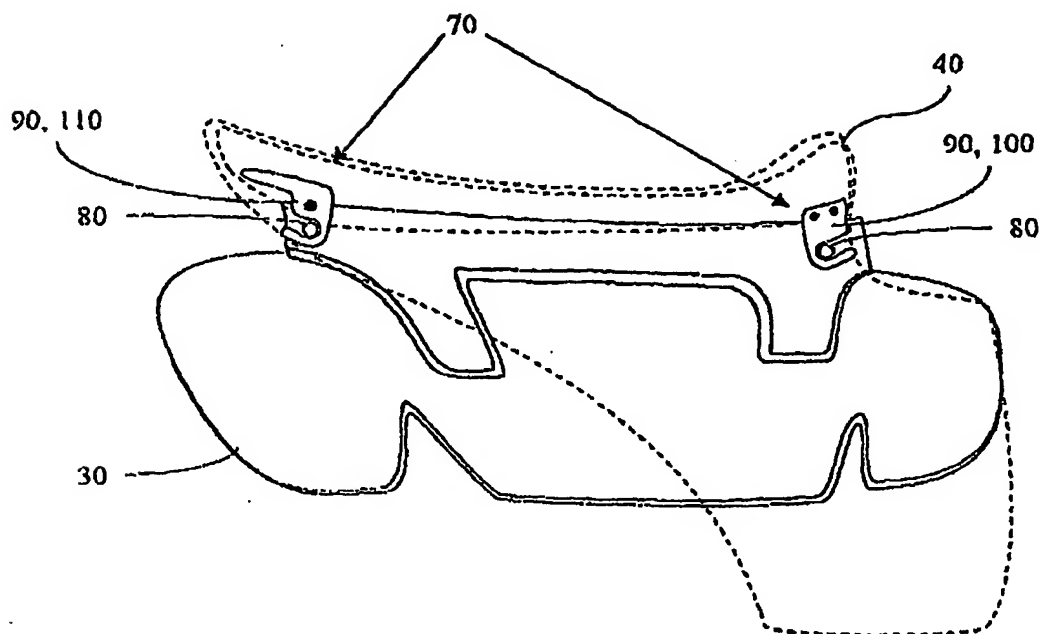


Fig 4a

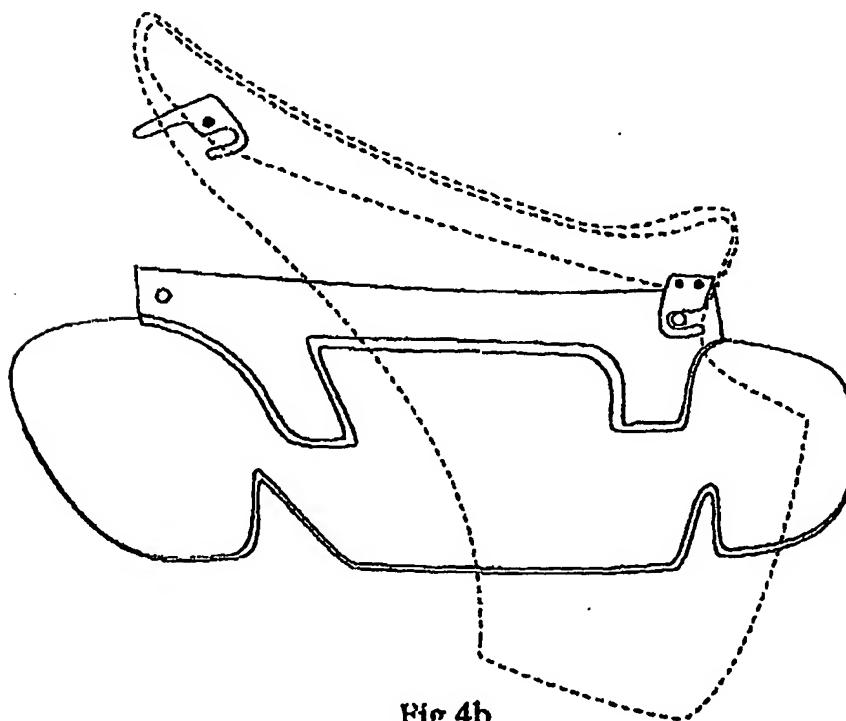


Fig 4b

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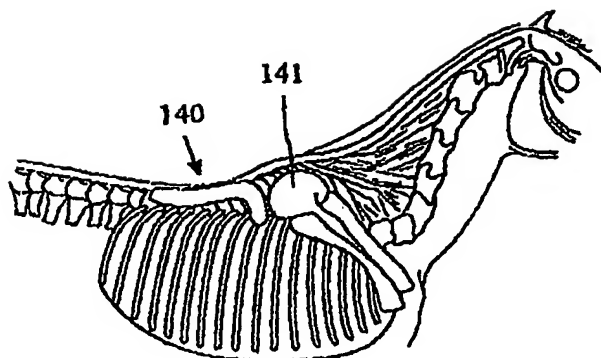


Fig 6a

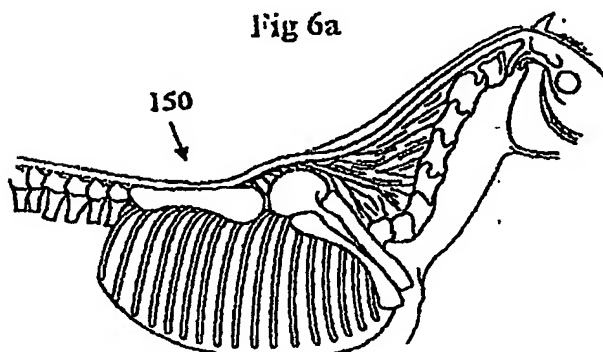


Fig 6b

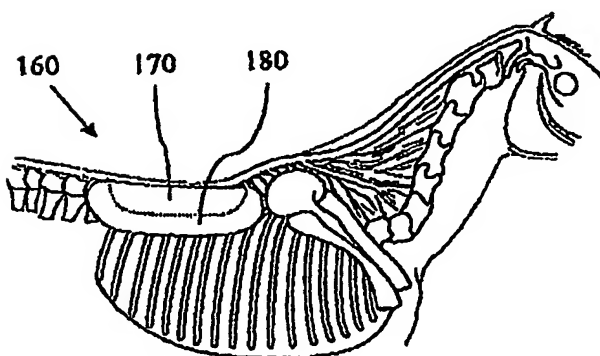


Fig 6c

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Method for measuring

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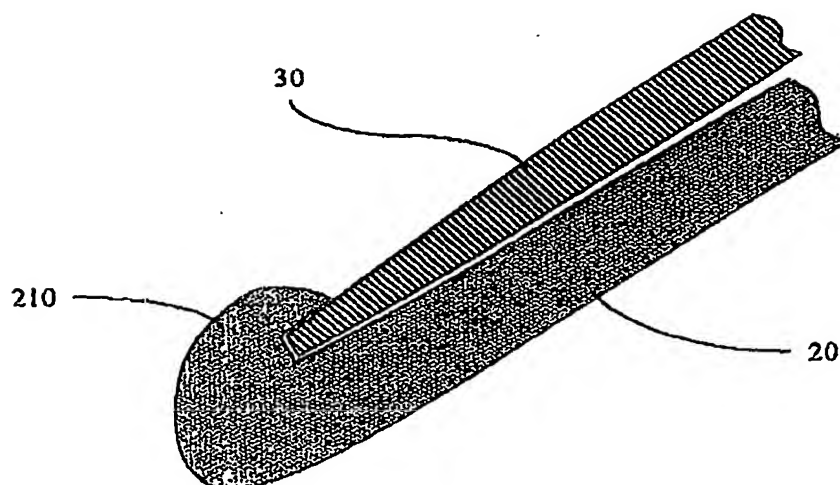


Fig 7

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